

SHEET INDEX

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CIRCUIT NOTES:

101.	DESIG	TYPE AMP	POTENTIAL	ONE PER CKT
	1-1/2		-40V TALK	

102.

FEATURE OR OPTION		PROVIDE APP OR FIG. 1-2	REMOVE APP OR FIG. 1-2
KS-19219, L1 AMPLIFIER		QUANTITY EACH PER CKT	
BIAS OSC	REC-REP OR AMP. SYSTEM	2*	
	3A, 6A, 6B, 6C		
	6A		
	6B		
LOW LEVEL	KS-12055		
	KS-12068		
	KS-16374		
HIGH LEVEL	KS-12055		
	KS-12068		
	KS-16374		
LOW FREQ EQUALIZATION	KS-12055		
	KS-12068		
	KS-16374		
HIGH FREQ EQUALIZATION	KS-12055		
	KS-12068, L5		
	KS-12068, L6		
AUDIO RECORDING HEAD CURRENT	LOW	KS-16374	
	HIGH	KS-12055	
	KS-12068		
BATTERY GROUND	PDC GND	3A, 6A, 6B, 6C	
	HIG GND	6A	
	6B		
OUTPUT TRANSFORMER	1 OR	KS-16374	
	2 OR	6A	
	6B		
REMOTE SWITCHING OF AMPLIFIER POWER FOR CHECKING VOICE OPERATED RELAY CIRCUIT	ENABLED (C53)	1	
	DISABLED	1	

* INDICATES OPTION FURNISHED WITH AMPLIFIER AS SUPPLIED BY THE MANUFACTURER.

103.

RECORD OF FIGURES, WIRING & APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION HAS FURN	SEE NOTE	USE IN CIRCUIT		
				STD	ADM	MD

INFORMATION NOTES:

201. THE SHIELDED LEADS TO (T81) SHALL BE TWISTED PAIRS WITH THE SHIELDS TERMINATED AS SHOWN AT THE AMPLIFIER END ONLY. THE SHIELDS SHALL BE INSULATED THROUGHOUT THEIR LENGTH. THE TOTAL CAPACITANCE BETWEEN THE HIGH-SIDE CONDUCTOR AND THE OTHER CONDUCTOR AND SHIELD FOR THE SHIELDED PAIRS TO THE MAGNETIC HEADS (LEADS R1, R2, E1, & E2) SHALL NOT EXCEED 500 PPF. THE TYPE OF WIRE SHALL BE AS SPECIFIED ON THE CONNECTING CIRCUIT.

202. WHEN REQUIRED, SHIELDED CABLE FOR THE OUTPUT LEADS SHALL BE SPECIFIED ON THE CONNECTING CIRCUIT.

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN PICOFARADS.
VALUES PRECEDED BY THE SYMBOL + (+PLUS) OR
- (MINUS) ARE IN VOLTS.

302. THE VOLTAGES SHOWN ARE TYPICAL DC VALUES WITH AVERAGE TRANSISTORS AND NOMINAL SUPPLY VOLTAGE. RELAY(TX) IS OPERATED TO HAVE THE AMPLIFIER IN THE RECORD CONDITION. VOLTAGES SHOWN THUS () ARE WITH INPUT SIGNAL AND RELAY (K10) OPERATED. THE VOLTAGES ARE MEASURED FROM POINTS SHOWN TO GROUND TERMINAL 24 USING A VOLTMETER HAVING A RESISTANCE OF 10 MEG OHMS MINIMUM.

WORKING LIMITS
MAX COND LOOP RES OF
OS1 AND OS2 LEADS - 250

SUPPORTING INFORMATION

CATEGORY	NO.

APP OR FIG.	LOCATION
Z	2C8
T	2C8
X	203
M	282
V	287
U	286
T	288
S	285
R	286
Q	286
N	285
M	286
L	286
K	286

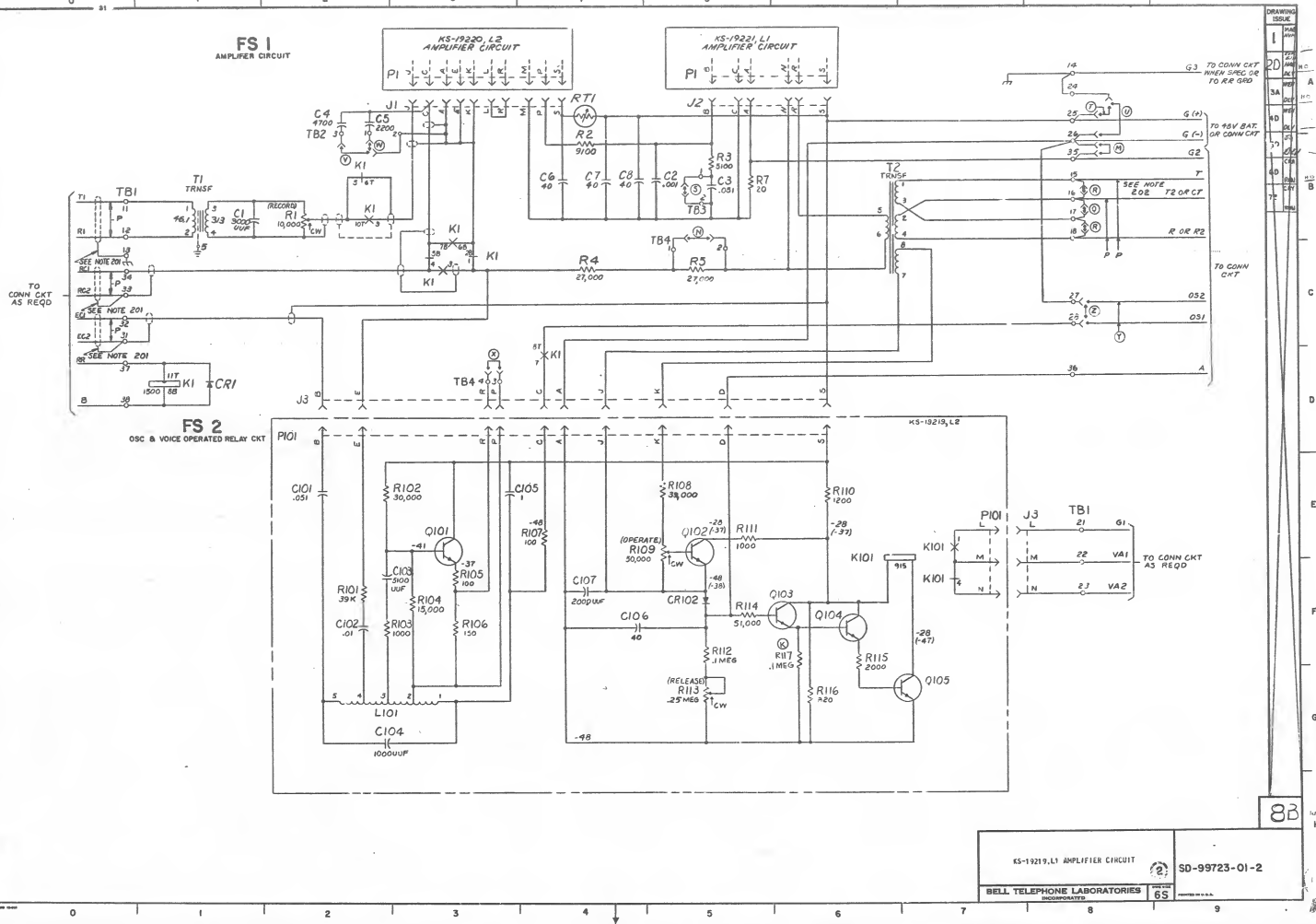
NOTICE
SEE FIG 101 FOR
RECORDING SYSTEM
THE FIG 101
RECORDING SYSTEM
IS NOT A PART OF
THIS DOCUMENT

FIGURE
8D

30-99723-01	5N06
COMMON SYSTEMS KS-19219, L1 AMPLIFIER CIRCUIT	
ADM ONLY	
SD-99723-01-1 5 SHEETS	
BELL TELEPHONE LABORATORIES HAWAIIAN ISLANDS	

2

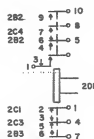
6S



APP. FIG. 1
(FS1)

RELAY

U1480
(ADJUSTED WITH VS COVER)



CAPACITOR

DESIG.	LOC.	CODE.
C1	281	3000 WUF, KS-19064, L1
C2	285	.001 WUF
C3	285	.051 WUF
C4	282	4700 WUF, KS-13367, L1
C5	282	2200 WUF, KS-13367, L1
C6	284	40 WUF, KS-16390, L1
C7	284	40 WUF, KS-16390, L1
C8	285	40 WUF, KS-16390, L1

CONNECTOR

DESIG.	J1	J2	J3
CONN			
OPTION			
NO.	LOC.	LOC.	LOC.
S	284	286	286
T	283	286	283
P	284		283
H	-	285	278
M	284	-	286
L	283	-	283
E	283	-	285
J	283	-	284
N	-	-	-
F	-	-	-
E	285	-	282
D	-	-	288
C	283	285	284
B	-	285	282
A	283	285	284

DIODE

DESIG.	LOC.	CODE.
CR1	281	446A

POTENTIOMETER

DESIG.	LOC.
R1	282

10,000
TYPE 45, "A" TAPER
1/4 INCH BUSHING AND A
SCHEMATIC SLOTTED
SHAFT 3/8 INCH F.N.S.
A FLAT AT END OF SHAFT
1/32 X 1/32 SHALL BE ON
SIDE ADJACENT TO AND
INDICATING SLIPER CONTACT
POSITION. IT SHALL BE
LOCATED AT 90° TO SLOT
IN SHAFT.
CHICAGO TELEPHONE SUPPLY
CO. OR APPROVED EQUIVALENT

RESISTOR

DESIG.	LOC.	CODE.
R2	284	97000
R3	285	51000
R4	284	27,0000, KS-19150, L1
R5	285	27,0000, KS-19150, L1
R7	285	200, KS-14403, L1A

TERMINAL BOARD

DESIG.	LOC.	CODE.
NO.	LOC.	LOC.
11	281	21
12	281	22
13	284	23
14	284	24
15	288	25
16	288	26
17	288	27
18	288	28

THERMISTOR

DESIG.	LOC.	CODE.
RT1	284	10

TRANSFORMER

DESIG.	LOC.	CODE.
T1	281	25360
T2	286	2608A

DESIG.	LOC.	CODE.
T82	282	CINCH MFG CORP CHICAGO, ILLINOIS NO. 1552
T83	285	B-551643
T84	285	CINCH MFG CORP CHICAGO, ILLINOIS NO. 1542

APP FIG. 2

(F52)
KS-19219, L2 OSC & VOICE OPERATED RELAY
(PRINTED WIRING BOARD ASSEMBLY)

RELAY MAB



CAPACITOR

DESIG	LOC	CODE
C101	2E2	.051 UF, KS-19066, L3
C102	2F2	.01 UF
C103	2F3	5100 UUF
C104	2E2	1000 UUF
C105	2E4	1 UF-200V, 5420
C106	2F4	40 UF-20V, 402A
C107	2F4	2000 UUF, KS-19066, L8

CONNECTOR

KS-14345, L1

DESIG	P101
CONN	PLUG
OPTIC	
NO.	LOC
1	204
2	203
3	205
4	207
5	2E7
6	2E7
7	2E7
8	205
9	204
10	-
11	-
12	-
13	-
14	-
15	-
16	-
17	-
18	-
19	-
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95	-
96	-
97	-
98	-
99	-
100	-

DIODE

DESIG	LOC	CODE
CR102	2F5	446A

INDUCTOR

DESIG	LOC	CODE
L101	2E2	1640C

APP FIG. 3

(F51)
KS-19220, L2 AMPLIFIER
(PRINTED WIRING BOARD ASSEMBLY)

APP FIG. 4

(F51)
KS-19221, L1 AMPLIFIER
(PRINTED WIRING BOARD ASSEMBLY)

POTENTIOMETER

DESIG	LOC	CODE
R109	2E4	50,000, .5" TAPER
R113	2D5	.25 MEG, STANDARD .5" TAPER

TYPE A5,
1/4 INCH BUSHING AND
A SCREWDRIVER SLOTTED
SHAFT 3/8 INCH
F.R.S.,
CHICAGO TELEPHONE
SUPPLY CO. OR
APPROVED EQUIV.

RESISTOR

DESIG	LOC	CODE
R101	2F2	39,000Ω
R102	2E3	50,000Ω
R103	2F3	1000Ω
R104	2F3	15,000Ω
R105	2F3	100Ω, KS-19151, L1
R106	2F3	150Ω, KS-19150, L1
R107	2E4	100Ω, KS-19151, L1
R108	2E5	39,000Ω, KS-19150, L1
R110	2E6	1200Ω, KS-19152, L1
R111	2E5	1000Ω
R112	2F5	.1 MEG
R114	2F5	51,000Ω
R115	2F6	2000Ω
R116	2D6	820Ω, KS-19151, L1
R117	2D6	.1 MEG, KS-19150, L1

TRANSISTOR

DESIG	LOC	CODE
Q101	2E3	20L

Q102	2E5	
Q103	2F6	
Q104	2F6	
Q105	2E7	
Q106	2F6	
Q107	2F6	
Q108	2F6	
Q109	2F6	
Q110	2F6	
Q111	2F6	
Q112	2F6	
Q113	2F6	
Q114	2F6	
Q115	2F6	
Q116	2F6	
Q117	2F6	
Q118	2F6	
Q119	2F6	
Q120	2F6	
Q121	2F6	
Q122	2F6	
Q123	2F6	
Q124	2F6	
Q125	2F6	
Q126	2F6	
Q127	2F6	
Q128	2F6	
Q129	2F6	
Q130	2F6	
Q131	2F6	
Q132	2F6	
Q133	2F6	
Q134	2F6	
Q135	2F6	
Q136	2F6	
Q137	2F6	
Q138	2F6	
Q139	2F6	
Q140	2F6	
Q141	2F6	
Q142	2F6	
Q143	2F6	
Q144	2F6	
Q145	2F6	
Q146	2F6	
Q147	2F6	
Q148	2F6	
Q149	2F6	
Q150	2F6	
Q151	2F6	
Q152	2F6	
Q153	2F6	
Q154	2F6	
Q155	2F6	
Q156	2F6	
Q157	2F6	
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Q161	2F6	
Q162	2F6	
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Q189	2F6	
Q190	2F6	
Q191	2F6	
Q192	2F6	
Q193	2F6	
Q194	2F6	
Q195	2F6	
Q196	2F6	
Q197	2F6	
Q198	2F6	
Q199	2F6	
Q200	2F6	

NOTES:
1. CIRCUIT BOARDS BEARING THE MARKING
"SERIES 2" ARE FURNISHED WITH 446
TRANSISTORS AND RESISTOR KIT7.

KS-19219, L1 AMPLIFIER CIRCUIT

SD-99723-01-4

BELL TELEPHONE LABORATORIES

SD-99723-01-4

6S

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